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## REVIEWS

**Proceedings : International Conference on Plant Breeding and Hybridization \***

An international conference on plant breeding and hybridization was held in New York City, September 30 and October 1 and 2, 1902, and the papers there presented, together with the discussion on them, have been collected and published by the Horticultural Society of New York as *Memoirs*, Vol. 1, under the editorship of the secretary of the society, Leonard Barron.

The programme of the meeting as given in the *Memoirs* was long as well as comprehensive. Thirty papers were read, thirteen additional were read by title, and all of these save one are given in the report of the conference.

Some idea of the scope of the work presented can be had if the titles of half a dozen papers, chosen at random, are given. Professor William Bateson, Cambridge, England, gave "Practical Aspects of the new Discoveries in Heredity"; Mr. W. A. Orton, U. S. Dept. of Agriculture, "On the Breeding of Disease-resistant Varieties"; Mr. L. C. Corbett, U. S. Dept. of Agriculture, "Improvement of Roses by Bud Selection"; Professor William Saunders, Director of the Central Experimental Farm, Ottawa, Canada, "Results of Hybridization and Plant Breeding in Canada", and, to cite but one additional title, M. P. de Vilmorin, Paris, France, "The everbearing Strawberry."

Naturally the work of the earlier hybridizer, Gregor Mendel, was repeatedly referred to and was the central idea of several papers, particularly those of Bateson and de Vries.

Professor Bateson presented his now well-known views on the nature of the sex cells, or gametes, and their relation to the segregation of inheritable characters. He showed, among other things, that hybrids with certain characters fixed arise by the union of equivalent gametes (equivalent as regards the character in question), to use his terminology such are homozygotes, and that, on the other hand, unstable hybrids are produced as a result of the union of gametes unlike as being bearers of the char-

\* Proceedings International Conference on Plant Breeding and Hybridization. *Memoirs Hort. Soc. New York*, 1 : 1-271. 1904.

acters in question, or such are heterozygotes. It appears to the reviewer that Professor Bateson's terminology is peculiarly fit, avoiding such circumlocution as "a hybrid with fixed character," meaning a homozygote, or "a hybrid with variable characters," meaning a heterozygote.

Professor Bateson speaks of two subjects, but does not discuss them at length, which are the theses of a paper by de Vries, "On artificial atavism," namely, the resolution of compound characters and the reformation of compound characters through the combination of simpler ones.

Without going into this interesting subject in detail, it can be said that Professor de Vries by beautiful experiments shows that characters apparently simple may be separated into more elemental ones, and conversely by the combination of the latter the compound character may be restored. In case the latter is an ancestral character the phraseology "artificial atavism" is well taken.

Generally speaking, the plant breeders had not taken advantage of the Mendelian theory in their work, and some of them did not know of Mendel or of his experiments before the Conference. As exceptions to this statement must of course be included the plant breeders from the Department of Agriculture, and of these notably Spillman, whose studies on wheat hybrids are well known. Curiously enough, the work of Spillman was not presented at the Conference.

Although hybridization formed the theme of perhaps most of the papers, not a little of the work was based on selection alone, or on selection as an aid to hybridization. The experiments of Orton, for instance, by which wilt-resistant varieties of cotton, watermelon and cow peas were obtained, consisted merely in the selection of individuals which were not subject to the disease in spite of the fact that they were growing in fields where it abounded. Roberts, on the other hand, succeeded in securing improved varieties of wheat by a system of crossing combined with rigid selection, and the same is true of other workers.

Interesting instances of the improvement of varieties by means of bud selection were also given. Powell, for example, selected

buds from the portions of apple trees which had superior fruit and used them as scions for grafting on more hardy stock. As a result of the third selection (generation) he obtains an apple which has the excellence of flavor of the earlier fruit to which has been added greater vigor and hardiness of the tree and greater uniformity of fruit.

Altogether, the report of the Conference will be very helpful to plant breeders as well as to those who are more particularly interested in the theoretical phases of the subject, and the Horticultural Society is to be congratulated on its excellent appearance.

W. A. CANNON.

## PROCEEDINGS OF THE CLUB

WEDNESDAY, NOVEMBER 30, 1904

The meeting was called to order at the usual hour at the New York Botanical Garden, Professor L. M. Underwood in the chair; twenty members present.

A painting of the Gloriosa Lily (*Methonica superba*) was received through President Brown from Mrs. Annie Eliza Scott Guerritore, of Naples, Italy. On motion a vote of thanks was ordered transmitted to Mrs. Guerritore and the picture was turned over to the Botanical Garden for exhibition purposes.

The following were elected to membership: Miss Mabel Denton of Paterson, N. J.; Mr. C. B. Robinson of New York City, and Dr. G. H. Shull of Cold Spring Harbor, N. Y.

The first paper on the scientific program was entitled "Recent Contributions to our Knowledge of Paleozoic Seed Plants" and was by Edward W. Berry.\* It consisted of a brief discussion of recent contributions to our knowledge of those Paleozoic pteridophytes which had formed, or approximated the seed habit, the work of Professors Scott, Oliver, Kidston, Grand' Eury, Zeiller, and Renault. Especial attention was given to the work of Scott and of Oliver and to what amounted to a demonstration by them of seed-bearing in the Cycadofilicean genus *Lyginodendron* (*Sphenopteris*). Discussion by Drs. Britton and MacDougal followed.

\* This paper was published in full in *TORREYA* for December, 1904.